

Claims:

1. A whipstock assembly for positioning in a well bore at a selected azimuth, the whipstock assembly comprising:

a whipstock body supporting the whipstock face, the whipstock body  
5 having a whipstock center of gravity offset radially from a central axis of the whipstock body;

a counterweight releaseably securable to the whipstock body, the counterweight having an offset counterweight center of gravity such that a portion of the counterweight tends to occupy a low side of the well bore;

10 an orientation device for selectively orienting the whipstock face at a selected rotational position relative to the counterweight;

a neutralizer releaseably securable to the whipstock body, the neutralizer being positioned relative to the whipstock body such that a neutralizer center of gravity is radially opposite the whipstock center of  
15 gravity with respect to the central axis of the whipstock body;

a combined whipstock/neutralizer center of gravity is substantially closer to the central axis of the whipstock body than the whipstock center of gravity; and

a detaching mechanism for selectively releasing the neutralizer from  
20 the whipstock body, such that the neutralizer may be returned to the surface after the whipstock body is set in the well.

2. A whipstock assembly as defined in Claim 1, wherein the inclined whipstock face of the whipstock body intercepts a substantially  
25 cylindrical outer surface of the whipstock body, and the counterweight includes an outer substantially cylindrical surface with substantially the same diameter as the outer surface of the whipstock body.

3. A whipstock assembly as defined in Claim 1, wherein the neutralizer includes an engagement surface for substantially planar engagement with the whipstock face when the neutralizer is secured to the whipstock and body.

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4. A whipstock assembly as defined in Claim 1, wherein the neutralizer occupies a volume removed from the whipstock body during manufacture at the whipstock body.

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5. A whipstock assembly as defined in Claim 1, wherein each of the key and whipstock body include tabs to prevent premature retraction of a key from the whipstock body.

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6. A whipstock assembly as defined in Claim 5, wherein a slot in the whipstock body includes a relief section to allow retraction of the key after the whipstock has been set in the well.

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7. A whipstock assembly as defined in Claim 5, wherein each of the key and a connector sub include mating shoulder to limit radially outward movement at the key.

8. A whipstock assembly as defined in Claim 1, wherein the neutralizer is removably attached from the whipstock body.

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9. A whipstock assembly as defined in Claim 1, wherein shear pins limit movement at the neutralizer with respect to the whipstock body.

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10. A whipstock assembly is defined in Claim 1, wherein the setting rod assembly moves a cammed profile attached to the setting rod

assembly to move the neutralizer with respect to the whipstock.

12. A whipstock assembly as defined in Claim 1, wherein the whipstock is run in the well on coiled tubing and a swivel is positioned above the whipstock to rotationally drive the whipstock in the well pressure from the surface  
5 moves a piston within a connector sub to separate the neutralizer from the whipstock body.